Indoor Air Quality Monitor

October 2001 **North Dakota Department of Health**

Eye on Events

Radon Training

Midwest Universities Radon Consortium will hold a radon measurement and a radon mitigation course in Moorehead, Minn. The radon measurement course will be held Nov. 26-28, 2001. The mitigation course will be held Nov. 28-30, 2001. The course exams will be conducted on Nov. 28 and Dec. 1, 2001, respectively. For more information, contact Bill Angell at 800.843.8636 or visit http://dha.che.umn.edu/murc/

Open Airways Training

The American Lung Association of North Dakota (ALAND) is conducting open airways training for nurses and other school health personnel. The training will be held in Bismarck Oct. 23, 2001. For more information, contact ALAND at 701.223.5613.

October Proclaimed Indoor Air Quality Month

Governor Hoeven has proclaimed October 2001 as *Home Indoor Air Quality Month* in North Dakota.

The event is held to encourage North Dakotans to learn about indoor air quality issues.

"Maintaining clean, healthy air benefits every North Dakotan," said Francis Schwindt, Chief of the North Dakota Department of Health's Environmental Health Section. "Because we spend most of our time inside, the quality of indoor air affects everyone's health."

Pictured Above: Mel Fischer, Bismarck-Burleigh Department of Fire and Inspections; John Hoeven, Governor of North Dakota; Jesse Green, North Dakota Department of Health and Sue Kahler, American Lung Association of North Dakota.

Many factors negatively affect the quality of the air we breathe, including radon, carbon monoxide, secondhand tobacco smoke, lead dust, asbestos, and even certain household products. Because of poor indoor air quality, many North Dakotans suffer chronic and acute health effects and economic burden.

Exposure to secondhand smoke is a major cause of illness among children. Many children in North Dakota are at increased risk of illness or death because of exposure to secondhand smoke in the home. Secondhand smoke can lead to asthma, ear infections and lung cancer.

Asthma, the leading chronic childhood illness in the United States, can be aggravated by exposure to dust, tobacco smoke, pollen and allergens from mold, animals, plants and insects. Asthma is the leading cause of school absenteeism due to chronic illness. Nationally, asthma kills 4,000 people a year, and the majority of asthma-related deaths occur to children.

(*Proclamation ... cont. page 2*)

Inside This Issue ...

(Proclamation cont. from page 1)

Radon is the second-leading cause of lung cancer in the United States. In North Dakota, elevated radon levels have been found in more than 60 percent of homes tested for radon. For that reason, every home in North Dakota should be tested for radon, and action should be taken to reduce radon in homes that have tested high.

Every year, 500 Americans die in their homes due to carbon monoxide poisoning. To guard against carbon monoxide build-up in a home, North Dakotans are advised to do the following: (1) inspect and clean furnaces, (2) clean out chimneys and flues, (3) never use ovens or stoves to heat a home, and (4) install carbon monoxide detectors.

For more information about indoor air quality and its effects on health, contact Jesse Green or Sandi Washek, North Dakota Department of Health, at 701.328.5188. Additional information may be found on the department's website at www.health.state.nd.us.

Old Man Winter Is Just Around the Corner

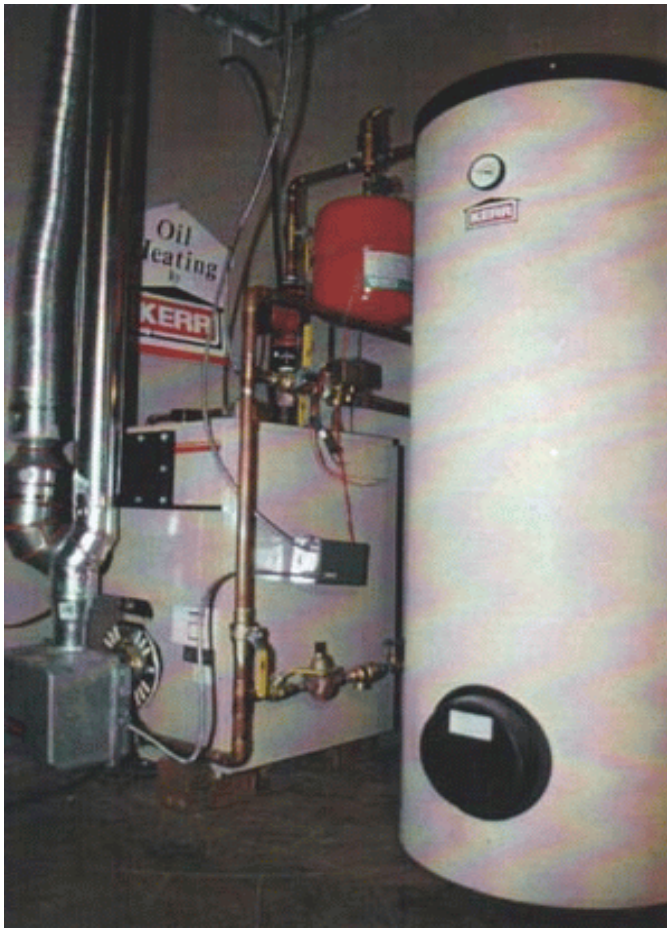
It is October, and winter is just around the corner. With the advent of colder weather, many people will no doubt be spending more time indoors.

At this time of the year, people think about heating their homes, rather than cooling them. Instead of opening windows for ventilation, they will use storm windows, weather stripping and plastic to create better weather seals.

As you prepare for the winter season, give some thought to indoor air quality.

One indoor air quality concern during the winter months is the increased possibility that combustion pollutants, such as carbon monoxide, may enter the building. Taking the following steps may help ensure that combustion pollutants are not a problem during the winter months:

- Have a certified heating and ventilation technician check your furnace for proper ventilation and exhaust.
- Install carbon monoxide detectors in areas that will alert building occupants in the event that CO becomes a problem. If carbon monoxide detectors are already present, check them to ensure they are functioning properly.
- Never run motor vehicles in a closed garage to warm them up or to conduct maintenance activities.
- Change your furnace filters regularly during the winter. Consider using a High Efficiency Particulate Air (HEPA) filter.



Another indoor air quality concern in the winter is mold growth due to condensation on windows, pipes and walls. With colder outside temperatures, warmer, more humid indoor air will tend to produce condensation on cold surfaces, creating conditions conducive to mold growth.

A third indoor air quality concern associated with the winter months is radon gas. Well-weatherized homes, and stack effect (hot air rising through the house like in a chimney) can create elevated radon levels in many homes. Winter is an ideal time to test a building for radon.

IAQ Colleague

Jim Michael at the Jefferson Memorial in Washington DC.

October's IAQ colleague is Jim Michael of Central Valley District Health Unit in Jamestown, N.D.

Jim was born and raised in southwestern Michigan, along the shores of Lake Michigan. He was drafted into the U.S. Army in 1968, served a tour of duty in Vietnam and was discharged in 1972.

He returned to college and received a bachelor's degree in environmental health from Ferris State University, Big Rapids, Mich.

Jim joined the staff of Central Valley Health Unit in December 1975. He is responsible for directing environmental health programs for the health unit.

Jim is married and has two children. His son is a junior at Colby College in Waterville, Maine and his daughter is a junior at Jamestown High School.

Jim enjoys fishing, reading and playing guitar.

Tool Talk: Indoor Air Quality Equipment Review

Figure 1 – Hindsman sling psychrometer

Temperature and relative humidity are important measurements to consider when conducting an indoor air quality (IAQ) investigation.

A hygrometer is an instrument used to measure the moisture content of a gas. The most common type of hygrometer is the dry- and wet-bulb psychrometer, such as a sling psychrometer (see Figure 1). A sling psychrometer consists of two thermometers attached to a sling. One thermometer is covered with a cloth wick while the other is left bare.

When a reading is to be taken, the cloth wick is dipped into water and then the instrument is whirled around. During the whirling, the water evaporates from the wick, cooling the wet-bulb thermometer.

The drier the surrounding air, the more moisture evaporates from the wick, which cools the wet-bulb thermometer more and shows a greater temperature difference between the two thermometers. If the surrounding air is holding as much moisture as possible – if the relative humidity is 100 percent – there is no difference between the two temperatures.

Psychrometric charts (see Figure 2) are used to determine the relative humidity from the two measured temperatures.

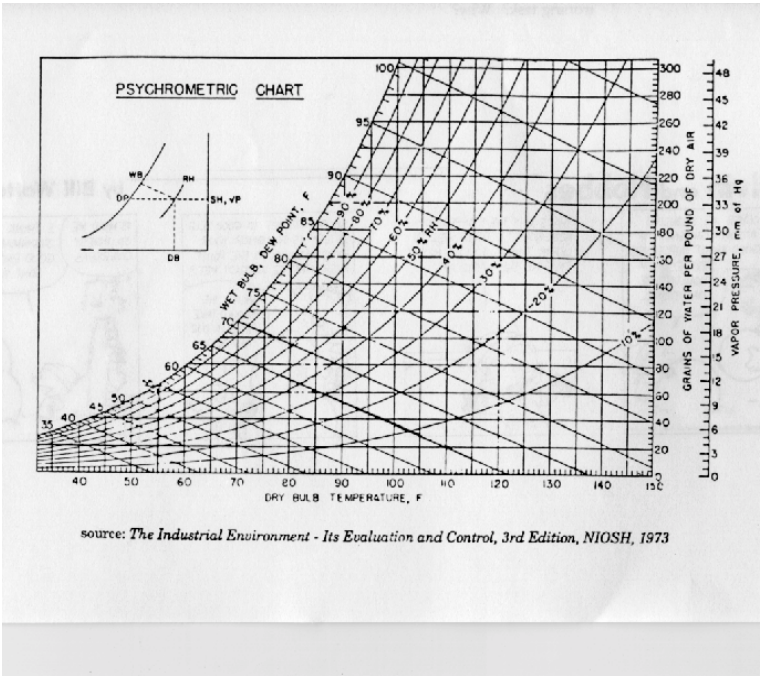


Figure 2 – Psychrometric chart

Today, modern science and technology has produced less cumbersome hygrometers to measure temperature and relative humidity. For instance, a pen-style hygrometer (see Figure 3) can be purchased from various environmental suppliers for between $50 and $100. For more information about relative humidity and indoor air quality, contact Jesse Green, North Dakota Department of Health, at 701.328.5188.

Figure 3 – Pen-style thermo-hygrometer

The Indoor Air Quality Monitor is published quarterly by the North Dakota Department of Health, Indoor Air Quality Program.

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